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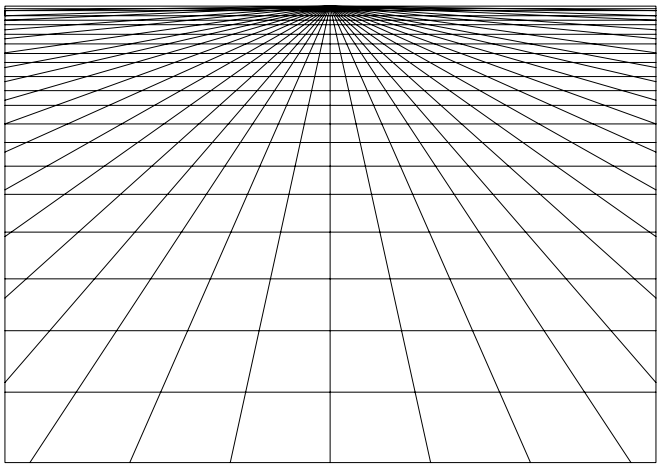

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Obstacles for the Development and Implementation of a Comprehensive Innovation Policy in Norway

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Synopsis

In 2003 the Norwegian government launched an action plan for a comprehensive innovation policy. Although Norway has had a satisfactory economic development, there is still room for improvement in the innovative area. The process of developing a comprehensive innovation policy was initiated after various pressures. Today, however, there is little activity in this political area. Following, the action plan can be considered a failure when it comes to initiating coherent, coordinated and horizontal innovation policies. This paper will discuss the various factors that might have contributed to this failure. These are knowledge and a common understanding of innovation policy, path dependencies, inertia and coalitions within government, government instruments for policy learning and political leadership. It further emphasizes that lack of anchoring of the plan can explain the failure of the Norwegian action plan for a comprehensive innovation policy.

Key words: Innovation policy, knowledge, policy learning, path dependency, inertia, coalitions and political leadership

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Table of Contents

1.0 Introduction

During the 1980`s and 1990`s innovation as a phenomenon was recognized as the decisive x-factor of future growth and welfare (Fagerberg, 2005, p.3). In the same period, knowledge has become the key input factor of our society, making our economy knowledge intensive. This gives us, both as citizens, policy- makers and scholars, new challenges and new opportunities as we have to influence future growth and welfare in new ways. Further, the task is complicated by the most common broad and all- embracing definition of innovation. Innovation is defined as new processes, new organizational models, new products or the combination of old ones in a new way. This means that innovation is everything that represents something new and can improve processes or products in a way that can generate economic benefits at some direct or indirect level (Fagerberg, 2005, p.4-8).

As a consequence of this acknowledgement, researchers have tried to expand the understanding of the innovation process to find out what influences firms' and societies' innovative capabilities. An area of research that has been particularly influential is the systemic approach to innovation. In an innovation system, all elements that might contribute to or reduce the innovative capabilities of a given area or sector are included (Lundvall, 1992, p.5). The important processes are the interactions between the different elements in the system. The main components of the system are organizations and institutions. Organizations are formal structures that are consciously created and have an explicit purpose (Edquist, 2005, p.188). Institutions are sets of common habits, norms, routines, established practises, rules or laws that regulate the relations and interactions between individuals, groups and organisation" (ibid.). Policy and governance structures represent both organizations and institutions in this system.

Although the systemic approach to innovation represented a new way of understanding innovations processes, this new understanding treated the government

dimension as a “black box”. This has changed during the expansion of the systemic approach and government is today seen as a crucial element for improving a nation’s innovation system. As the world becomes more dynamic, open and globalized, governance and institutional relationships becomes increasingly important when it comes to foster innovative activities. Government and governance structures are very important factors as they are in the position to influence many of the other elements in the innovation system. Following, policy-makers regionally, nationally and in international organizations have tried to break this down into direct policy efforts in order to improve the interactions between the different elements in their innovation systems. Innovation, as a systemic phenomena, indicates that innovation policy have to be comprehensive, horizontal and cross- sectoral (OECD, 2005a, p.9).

However, although policy and governance structures are considered to be important elements of innovation systems, little work and research has been done on the governmental processes influencing new policies and practices in his area. This can be due to many things. First, innovation policy is not a theoretical area, but an area of practices. National varieties must be taken into account. Hence different countries must develop individual policies. Second, there is not sufficient knowledge on what an innovation policy should contain as direct policy efforts. Third, different views on what innovation is and what scope it leaves for policy action can give inconsistent policy efforts that have limited or no effects.

Despite these difficulties many countries have due to various pressures initiated new processes creating and implementing their own innovation policy. Almost all western countries have challenges at maintaining high growth rates and reduce unemployment, as they at the same time face large increases in welfare expenses and increased competition from countries with low- wages and marginal public expenses. This challenge has, together with increasing external pressures, created sufficient incentives to initiate national innovation policies (EU, 2006, p. 11-13). Unfortunately few of these efforts have been successful

(OECD, 2005a, OECD, 2005b). However, these changes are very recent and might not be visible yet.

In this paper I want to look at the Norwegian attempt at creating a new governance tool for innovation policy. More specifically, this will include the development and the implementation of "From Idea to Value" in 2003, the government's action plan for a coherent innovation policy (Ministry of Trade and Industry, 2003). OECD (2005a, 2005b) has done an analysis of national efforts through the MONIT[1] project. Their conclusions were that Norway met many difficulties in executing a unified innovation policy strategy because of structural and institutional barriers within government (Remøe, 2005, p.217). They also stressed the need for broader knowledge bases within the area of innovation policy and identified many underlying tensions in the Norwegian institutional system that influenced the work with innovation policy in a negative way (Remøe, 2005, p.227). In this thesis I want to analyze the process of bringing about the governmental action plan for innovation policy and study obstacles to the development and implementation of a comprehensive innovation policy in Norway.

The Norwegian initiative from 2003 is no longer on the political agenda and although the plan was characterized as a first step, little follow up work or processes has been initiated except from a state of the art report in 2005 (Ministry of Trade and Industry, 2005). Several questions arise from this. To what degree was the Norwegian effort to change their innovation policy was a failure and why did it fail? What internal or external obstacles are there to implement such changes? Are there processes and institutional settings within the bureaucracy that have contributed to this failure? Or is it the political leadership in the responsible ministries that has failed? Can there be dysfunctional learning systems within in the bureaucracy and government failing to feed back policy deficiencies to policy makers?

[1] Monitoring and Implementing National Innovation Policies (MONIT)

The structure in this paper is as following. First I will present my case, the Norwegian plan for a coherent innovation policy, “from Idea to Value”. In chapter three, I will present my research question and the theoretical basis of a “third generation innovation policy” as well as the different theoretical approaches that can bring more knowledge into these processes. From these I will derive some hypothesis I will use in my discussion in chapter four. At the end of chapter three I will present my methods. In chapter four, I will analyze and discuss these hypotheses together with my empirical data and presented theory. In chapter five I will link the different hypothesis together and present my discussion and conclusions. Finally in chapter six I will present some implications for policy and suggestions for further research.

2.0 "From Idea to Value" – a Comprehensive Innovation Policy Plan for Norway

2.1 The Initiative

The initiative was first presented in the Government's research committee where the Minister of Research and Education, Kristin Clemet launched the idea of a comprehensive innovation policy. A group of State Secretaries from the Ministry of Research and Education, the Ministry of Trade and Industry and The Ministry of Local Government and Regional Development were gathered to plan the process. The main responsibility was given to the Ministry of Trade and Industry who lead the process afterwards. Originally, the plan was more an initiative towards entrepreneurs and start up companies in order to support their work as inventors and innovators. This was extended as government saw the need to develop a more comprehensive innovation policy.

The pressure came on the one hand from inter-governmental organizations like the OECD and EU, from research milieus as NIFU STEP[2] and from politicians and other stakeholders who saw the importance of developing a more coherent innovation policy. On the other hand, the challenges popularly referred to as the "shark's jaw" the increasing gap between future income from the oil and gas sector and adversely increasing welfare expenses, created pressure to secure future industries in a global competition (Ministry of Trade and Industry, 2003, p.9). This acknowledgement made many national stakeholders, especially in the political realm of society; realize that creating incentives towards increasing firms and societies innovative capabilities were the main presupposition for future growth and welfare. This contributed to release the sufficient willpower in government to initiate such policy changes. After a period of malfunctioning industry policy with much direct support to sector industries and companies and government attempts at creating clusters[3], there was a vacuum

[2] NIFU STEP is the leading Norwegian research institute for studies in innovation, research, and education (http://english.nifustep.no)

[3] Attempts partly supported by the political environment as IT Fornebu, (Hernes, 1998)

to be filled in the area of industry policy. The initiation and implementation of an innovation policy would contribute to fill this space.

2.2 The Process of Making a Comprehensive Innovation Policy

The government decided that this was to be launched as an action plan. However, this way of work does not demand the usual ex ante evaluations with external actors that are required with for instance white papers. There were some limited hearings with other government agencies like Innovation Norway[4], the Norwegian Research Council[5] and SIVA[6], but there are opposing views on how well this was integrated in the development of the plan. The process started in 2002 and the action plan was presented in 2003.

The actual writing was done by a cross- ministerial group of mid level bureaucrats who were put together in order to work out a common ground for innovation policy. Ministries represented were the Ministry of Trade and Industry, the Ministry of Local Government and Regional Development and the Ministry of Education and Research. Their mandate was to work out a common definition of innovation, highlighting important policy areas for innovation policy and agreeing on efforts to be initiated as instruments of the action plan. This required a great deal of coordination between the Ministries. Although they did not participate in the working groups, the document was signed by the Ministry of Agriculture and the Ministry of Petroleum and Energy as well.

After the presentation of the plan, a large conference with different stakeholders was held, promoting innovation policy as one of the main political efforts in policies for sustainable development, growth and future welfare. At this point the plan was addressed as a

[4] Innovation Norway promotes nationwide industrial development profitable to both the business economy and Norways national economy (www.innovasjonnorge.no)
[5] The Norwegian Research Council is the national actor for coordinating research efforts and funding (www. forskningsradet.no)
[6] SIVA builds networks between regional, national and international R&D (research and development) environments (www.siva.no).

first step as the dimensions of the plan were large and the efforts suggested were seen as inadequate by many in relation to what innovation policy should contain.

2.3 Content and Efforts of the Action Plan

"From Idea to Value" identified five main policy areas that were important for innovation in Norway. These areas were:

- The improvement of general framework conditions for industry
- The improvement of knowledge and competence in firms and society
- Increased efforts in research and development
- The improvement of entrepreneurship policies and the conditions for start- up companies
- The improvement of different infrastructures

Within these areas several efforts were launched in order to promote innovation. In the area of framework conditions for industries legislation on competition, public purchase policies, tax systems, improving the recruitment and use of workforce, a user friendly public sector and a simplification of public regulations were listed as high priority areas. In the area of knowledge and competence these were improvement in education to promote internationally competitive levels of knowledge, strengthen the natural sciences, creating incentives for lifelong learning and improving the knowledge flows between industry and knowledge institutions. The third area was research and development, where the top goal was to reach the OECD level of R&D, 3 % to R&D of GDP. Other goals were to increase the quality and degree of internationalization of Norwegian research, strengthen the relationship between research institutions and industries to improve industry R&D, and work to commercialize more results from research. In the area of entrepreneurship these efforts were listed; implementation of entrepreneurship as method in schools and other education, make it easier

to start new companies, increase the direct public efforts to small and medium sized enterprises, to entrepreneurs and young firms as well as risk reduction in early stages for start- up companies. The final area is infrastructure. The most important efforts are to develop a safe, effective and environmentally friendly infrastructure in the whole country, develop good, secure and simple E- solutions for signatures, payment solutions and communication (Ministry of Trade and Industry, 2003, p.16-38).

However, many of these efforts were already part of other policy areas and on their way to be implemented. In order to initiate something new and truly cross- sectoral from the plan, nine geographically or industry specific projects were initiated to detect barriers to innovation and use this knowledge to improve a region or sectors innovative capabilities. These were:

- Maritime development, MARUT
- Commercialization of research results
- Innovation in the northern regions
- Inland 2010
- Successful transitions in industry
- Big city development (main capital and regional centers)
- Innovation in private services
- Innovation in public services
- Naval development

Source: (Ministry of Trade and Industry, 2005, p. 32-40).

The projects were placed in six different ministries. These projects had a limited time frame although some have been continued by the responsible ministries.

2.4 Organizational Implications

On the organizational level the main goal was to create working methods that makes a development of an effective, dynamic and coherent innovation policy possible. The concrete efforts in this area can be separated into two dimensions, one on the top decision- maker level and one more fundamental for the way ministries work.

On the top level it was established a Government's innovations committee, this consisted of nine Ministers. The Government's innovation forum consisted of stakeholders from unions, industry and other important actors in addition to the Ministers. Within the bureaucracy new organizational practices and routines for cross- ministerial work were to be established. There were also a cross- sectoral group of mid level bureaucrats who were set to cooperate on policy matters in this area.

For the working practices in the ministries there were established goals to improve learning practices within the ministries. To do this the establishment of result-oriented goals to promote evaluation and learning within government practices was central in addition to making structures more flexible and decentralized (Ministry of Trade and Industry, 2003, p. 15).

2.5 Budgetary Implications

In the Norwegian plan for a holistic innovation policy, no new concrete economic obligations were made (Ministry of Trade and Development, 2003). The responsible ministries got no extra funding and were expected to find resources to this work within their own budgetary framework. The exception was the nine projects as they received extra funding. However this was limited to each project and for further funding, each ministry had to find funds within their own budgets.

2.6 The Degree of Change from Previous Policy

Reports and evaluations of the Norwegian Innovation policy (Remøe, 2005, Grønning, 2006) claim that changes in Norwegian innovation policy have been minimal after 2003. The plan did not include the most important elements of an innovation policy, as most of the suggestions were sectoral and not a result of a preliminary work with an innovation policy but rather a summarization of policy areas important for innovation. According to my informants, many of the suggestions were established as parts of other policy areas which were already on their way of being implemented. To their defense, the responsible Ministers presented this as a first step towards a coherent innovation policy. However there has been little follow up of these promises except from a state of the art report on innovation policy in the autumn 2005, were all areas from 2003 were listed with indicators of how far they were in fulfilling each goal (Ministry of Trade and Industry, 2005, p. 23-26). However, innovation policy is not on the government's agenda today.

3.0 Conceptual Framework

3.1 Research Question

When assessing the efforts and actions following the Norwegian action plan for a comprehensive innovation policy, these efforts can be considered a failure when compared to the intended goals. Despite good intensions the process failed somewhere along the way. It is therefore interesting, both academically and politically, to find out why this happened and which mechanisms that strengthens and reduces these factors. Findings can be useful not only for Norwegian stakeholders, but also for others who wish to implement coherent policies in similar regimes. My research question in this paper is:

Why did the initiation and implementation of a comprehensive innovation policy in Norway fail?

The focus will mainly be on internal causes and I will analyze the interplay between the different elements in the process and see how they have influenced the work with a Norwegian Innovation policy.

3.2 A Third Generation Innovation Policy

The main goal for an innovation policy is to give incentives to and release the innovative potential in a region or country. This is a challenging task for governments. Modern innovation policy sees government and governance in a new way, giving them a larger and more active, and in some ways a decisive part to play in the process of improving a nation's innovative capability.

Innovation policy has developed in many stages through the years. The first period, from after the Second World War until about the 1980's, represented a linear understanding

of innovation and technological development as their basis for policy, making direct efforts in the research area it's most important goal. The linear understanding of innovation sees the process of technological development as an automatic process from basic research, to applied research, to development work and finally as a product demanded by the marked. The notion of innovative activity as linear and automatic made the policy efforts input oriented. An increase in research funding and a strengthening of the science communities became the presupposition for the creation of new technology. Following this way of thinking, policy-makers implemented these efforts in their policies towards research and higher education (Remøe, 2005, p.220).

The second period or generation of innovation policy from about the 1980's until the end of the 1990's, had a deeper understanding of innovations as a base. Innovative processes were at the time seen as interactions between the different elements in the innovative system. The feedback mechanisms and the knowledge flows between these elements were perceived as a crucial precondition for innovation. The goal of policy in this period was to strengthen the feedback mechanisms between the different elements (Grønning, 2006, p. 23- 25). However these developments in the understanding of innovation processes did not include governance structures.

Around the millennium several countries made attempts at implementing what is referred to as a third generation innovation policy. This is an even broader understanding of innovation policy. It includes all policy areas, institutions and sectors that are of importance to innovation as well as taking the government dimension more seriously (Remøe, 2005, p.221). More specifically a third generation innovation policy include general framework conditions as tax systems, regulations, laws influencing firm's behavior, labor marked, educational systems, welfare arrangements, transport and infrastructure. Innovation policy is

to increase the government's ability to release the innovative potential of all other sectors (OECD, 2005a, p.9).

These are all policy domains that can contribute to reduce or improve a nations innovative potential. Innovation policy is in many ways structure policy, its aim is to improve and strengthen structures in order to make them become flexible, dynamic and adaptable when facing a continually changing environment. This need for flexibility and dynamic ability also has to be apparent in policy areas, which influence innovation. To use a recent Norwegian example, a large cellulose factory, Union, was decided shut down in 2006. This happened in the end of the national election campaign in 2005, politicians from all parties cried for action, but they could do anything to influence the decision. At the last day of production the majority of the work force had gotten new jobs or offers of jobs elsewhere in the same company (www.norskeskog.com). This shows the adaptive ness of the Norwegian labor marked. This is both due to less rigid protection of the employees than they for instance have in Germany, and the high level of education in Norway that indicates high learning capacity and therefore an ability to adjust to new opportunities.

How you define innovation policy is important in relation to both which policy areas you include and how that policy should be executed. The neo- classical view of economics traditionally has one rationale of what the scope for public policies are, while the evolutionary economics has another. The main difference is the argument for why public intervention is needed; the neo classical economics sees problems in innovation systems as market failure while evolutionary economics sees it as a system failure (Good NIP, 2003, p.4-6).

These two understandings call for different solutions and have different understanding of the need and scope for policy actions. "Market failure" is the assumption that firms in marked economies systematically will under invest in R&D because knowledge is expensive

to develop, but easy and cheap to distribute. As a result of this firms will not be able to keep enough surpluses from their R&D activity and will therefore under invest in R&D. The scope for policy is therefore actions that encourages discovery- oriented activities and protects the use of the results (Smith, 1999, p.22-23). This can be policies as R&D funding and protection of intellectual property legislation. The problem with this assumption is that it does neither say where policy action should be located nor say how much policy is needed.

"System failure" includes failures in infrastructural provision and investment, transition failures, lock- in failures and institutional failures (Smith, 1999, p. 40). This implies that innovation not only is influenced by marked forces but by the entire innovation system. The basic function of systemic innovation policies is to facilitate for innovation opportunities by building an innovation infrastructure (Good NIP, 2003, p. 6).

In the public discourse on innovation policy misunderstanding founded in these different perceptions of innovation and the scope for public policy, often result in a centrifugal debate were the main line of conflict is between whether we should have a pro-active or neutral industry policy. The first side focuses on industry specific conditions, while the second focuses on the general framework conditions. However, none of these positions is connected to innovation policy. Innovation policy is not about protecting "dying" industries or sectors, and it can never be neutral or passive as it is a complex mix of policy areas that affects innovative processes. It requires active and deliberate policy choices that strengthen a society's ability to adjust and build dynamic and flexible structure to enhance these mechanisms. The Norwegian policy debate has also been influenced by these misunderstood divergent views. The created conflict between active and less active industry policy, makes policy changes in these areas more difficult as the debate becomes polarized.

A shift to a third generation innovation policy represents a major change in the way of thinking and prioritizing for government, ministries, public agencies and other stakeholders.

Former responsibilities can shift through other ways of working both internally within an organization and in collaboration with other agencies. This can present certain difficulties as tensions between the new and the established can arise. Other potential tensions can be short term budgetary implications, conflicting views on the implications of innovation policy, strategic challenges connected to labor divisions, agencies and the organizational set up of government (OECD, 2005a, p. 9). As a large and cross- sectoral policy area, innovation policy has to include these features:

- Coherence in policy which imply that all suggested policy efforts have to be supportive, i.e. not in conflict with each other in order to avoid policy with competing rationales.
- Policy has to be horizontal in its approach as it covers many different policy areas and crosses many boundaries between traditional policy areas.
- Policy has to be coordinated to ensure common understanding and to direct efforts effectively.

Source: (OECD, 2005a, Good NIP, 2003).

Innovation policy documents have especially stressed certain areas that are important to the successful creation of a modern innovation policy.

- Coordination between and within agencies to balance imperatives and to find mutually supportive policies.
- Create common visions and strategies to improve policy integration and to overcome internal tensions.
- Make action plans with proper evaluation, monitoring and reporting systems and make learning an integrated part of government practices.
- Improve knowledge bases of all involved organizations.

- Improve and clarify the division of labor between government agencies.
- To create balanced public- private sector interfaces for policy and actions

Source: (OECD, 2005a, p 14- 16).

The Norwegian action plan for a comprehensive innovation policy was an attempt to develop a third generation innovation policy in Norway.

3.3 The Underlying Reason for Failure

I will now present my main hypothesis for why the process of implementing a coherent innovation policy in Norway failed.

"The action plan for a comprehensive innovation policy failed because it was not sufficiently deeply rooted in the ministries and other stakeholders because there was a lack of knowledge and distinct criteria for what a coherent innovation policy would imply for policy and government action."

3.4 Knowledge and Learning as the Basis for Innovative Activity

The area of innovation policy is as I have mentioned earlier theoretically connected to the systems of innovations approach. An important part of innovation systems is therefore policy and governance structures, how they work and how they effect innovation. Policy and government efforts is the only way policy makers have a chance at making improvements and changes in the innovation system, and should therefore be used wisely in order to secure a nations future growth and welfare.

The increased focus on innovation and innovation systems is connected to the knowledge intensification of our economy. The foundation of innovation theory is

knowledge, because the knowledge embedded in persons, between persons and in organizations is the presupposition for all types of innovations. The main feature of a knowledge economy is that the main resource or capital of production in the economy is knowledge (Castells, 1996, p. 17). The rapidly growing service sector is an example of this. The world is changing fast and is more open and dynamic than before. This makes knowledge the key ingredient to both using and taking advantage of new possibilities.

Knowledge is the result of learning processes in interaction with other people or organizations (Lundvall, 1992, p.1). It is characterized as being cumulative and though expensive to invent, overall cheap to produce and distribute (Parayil, 2005, p. 9). Knowledge and learning are becoming increasingly important for the ability to secure growth and future welfare. This increases the importance of understanding innovation processes and the mechanisms that influence these processes.

Assuming that knowledge is the key resource in modern economy, learning becomes the most important process. It is in the innovation system learning takes place and where knowledge is created and diffused (Lundvall, 1992, p. 1-2). This means that the diffusion of new and old knowledge, i.e. distributed innovations, is dependent on a well functioning innovation system. It is within this conceptual framework I write this paper. Innovation policy is a way of readjusting policy, bureaucracy and government agencies to this new reality. It is also about changing organizations and their mind sets in order to improve their capabilities in this area. Their dynamic and flexible ability will be decisive for how well they can manage new possibilities and challenges in the knowledge economy.

From my observation of the status quo of Norwegian innovation policy and the literature on innovation policy, I will now present theories I believe are of particular importance to the development of, and difficulties met, in the work with a coherent innovation policy in Norway.

3.4.1 Bureaucracy and Organizational Change

There is much literature from many theoretical directions on the behavior of and the mechanisms of organizational change. In this paper, my main focus is directed to public organizations and the bureaucracy in particular. I will now give a brief introduction of bureaucracy, presenting its common features and aims.

Weber saw the modern bureaucracy as a statement of formal rationality, a provider of stabile political conditions for both citizens and industry in spite of changes in the political landscape (Østerud, 2003, p. 66). Over the years, dysfunctions within the bureaucratic organizational model have been pointed out. Among these are the influence of personal ambitions, rigidity, inertia, and the claim of bounded rationality. Bounded rationality is the opposition to rationality theories of human behavior. It opposes the idea that one actor can know all consequences of a given choice and be able to choose the most optimal decision every time (Simon, 1945). Transferred to organizations this means that the different parts of an organization can act differently and inconsistent due to different interests and uncertainty about means- ends connections (Hannan and Freeman, 1984, p.151).

Following this, the bureaucracy is not a unified actor. It is influenced by the diversity of its own elements, its own history and limited resources. Their actions will not always be the most optimal or wanted solution (Østerud, 2003, p.68). This assumptions, together with the in some areas large prospects for independent action from the bureaucracy, makes the bureaucracy an independent actor with influence on political decisions (Østerud, 2003, p. 73). It is in this respect the bureaucracy becomes such an important actor and influence in my case study.

Another important contribution to understand the dynamics of public action is the decision- making theories. There are two main rivaling theories of decision-making theory. These are exchange- and institutional theories, where the first is based on rational actors who

negotiate forward agreements without any friction. These results are believed to be the most optimal ones as there could be no other result that would not be worse for one part. This is the principle of pareto- optimality[7]. The latter model is based on a more organized anarchy, using March and Olsen's garbage can model of decision making as an example (March and Olsen, 1976). It assumes that decisions do not follow certain logics, and that many different elements in the decision- making process can change the direction of a decision. They also see decision- making processes as potentially conflicted and that make them open processes with open- ended solutions (ibid.). This theory presumes that problems, solutions and decision-makers interact constantly and it is in these interactions they couple and make new connections. In another time or place the given problem could have been overlooked or solved differently.

In this paper I believe the latter theory can contribute to see the work with a coherent innovation policy in Norway in another way. When connecting this model to Simon's bounded rationality and the inner life of bureaucracy, they can inspire many interesting discussions of what happened in the process of making a comprehensive innovation policy in Norway.

3.4.2 Path Dependency and Inertia in Organizations

Innovation theorists have proven that in the process of developing an innovation system, history counts (Wicken, 2005, p.1). This is particularly connected to path- dependency literature. Path dependency can be explained as a self- reinforcing process where organizations, technologies or other units are so influenced by their own history that their actions and priorities becomes a part of a path (ibid). We can see this materialized when organizations or institutions repeatedly chooses related solutions, priorities or tasks over long

[7] Pareto- optimality is a situation where no other options can be better if it does not become worse for one party.

periods of time. Being path dependent can be strong point as it helps to keep focus, but there is also a risk that they can get "locked in" a certain path, making choices sub- optimal and unable to change direction (Dicken, 2003, p. 24). Rigidity can be a result of such ongoing processes.

In organizations and politics this can be materialized as opposition to change new priorities and policy areas as they may be in conflict with established paths. As actions and priorities are embedded in the system or organization it can be very difficult to change these paths. Many of the proposed policy changes in the plan for a comprehensive innovation policy in Norway were not very different from "old" policy efforts, and did not suggest many untraditional policy choices. This supports the path dependency argument. However, theories of path dependency do not exclude the possibility that paths can change or adjust. New paths are created, but the main challenge is to manage these changes before lock- in appears and negatively impacts decisions and directions.

Together with path dependency, inertia is one potential reason to why change in public sector can be slow and/or reluctant. Hannan and Freeman (1984) writes that structural inertia is a dynamic phenomenon and an organizations degree of inertia can change from environment to environment. Structural inertia must be defined in relative and dynamic terms; an organization has high inertia when the environmental conditions change more rapidly than the organization manages to keep up with environmental changes (Hannan et al. 1984, p. 151). During their research Hannan and Freeman (1984) found several mechanisms that re-enforces inertia. Reliability, accountability and reproducibility are highly valued competencies in organizations and also work as selection mechanisms. Reliability is the ability to produce a collective product with a given quality repeatedly. Accountability is the ability to rationally account for their actions. Reproducibility is the ability to reproduce its own structure in order to be reproducible and accountable (Hannan and Freeman, 1984, p.

153-154*)*. This theory assumes that society has certain selection mechanisms that favor certain features. These selection mechanisms have a tendency of choosing the features that coincide with the features of inertia. This is again re-enforced with age, size and complexity of an organization (Hannan and Freeman, 1984, p 157- 162).

This theory does not claim that organizational change is impossible, only that it have to be gradual and limited. However, there are ways to reduce the impact of inertia; this is where learning, in our case policy learning, can contribute to make organizational change become a smoother operation. The Norwegian bureaucracy is an old and complex organization with large and diverse responsibilities. Different internal forces can be opposed to changes and change can therefore meet adversity. From this I draw the following sub-hypothesis:

1. *The obstacles met in the process of executing a coherent innovation policy are due to path dependency and inertia in the bureaucracy.*

3.4.3 Policy Learning

Policy learning is to develop new and relevant knowledge about own efforts and feed this information back into the organization, the bureaucracy and the political environment. In many ways, an organizations ability to learn from its own actions and surroundings is an organizations ability to innovate. Policy learning is regarded as one of the prime preconditions for governments being able to develop and execute a well functioning innovation policy (OECD, 2005a, p.69). Learning can be separated into two different processes, knowledge acquisition (know how or learning by using) and knowledge development (learning by doing) (Burton- Jones, 1999, p. 7). Knowledge acquisition is for example to be able to use a computer, knowing how to program it, is knowledge

development. Knowledge is transferred both between people and organizations. That makes the absorptive capacity of persons and organizations important. Absorptive capacity is the ability to detect and adopt knowledge outside of you or your organization and use it for internal purposes (Cohen & Levinthal, 1990, p. 128).

Kline and Rosenberg (1986) have proposed a model they call the chain- link model to explain the innovation cycle. This model can be related to learning in organizations and policy learning. The main argument for Kline and Rosenberg is that all processes and actors who are involved in the innovation process or in this case, the innovation policy process, are mutually dependent on each other and the feedback system they share. Without proper instruments for knowledge sharing and acquisition of new knowledge these feedback mechanisms will fail (Kline and Rosenberg, 1986, p.290). To be able to fully exploit the learning benefits, an organizations ability to develop this into new and applicable knowledge is crucial. The increased knowledge intensification of society makes these processes more important than earlier.

There are many instruments for improving the learning ability of an organization. Organization and management researchers have studied the specific challenges of managing innovation and improving the knowledge creation and development of organizations. They have found working methods they believe improve an organizations ability to invent and innovate. The most relevant working methods for this thesis is strategic rotation, autonomous self- organizing teams, culture for good criticisms (Nonaka, 1991, p.102, Van de Ven, 1986, p.600), and good evaluation practices with specific attention to both ex ante and ex post evaluation (OECD, 2005a, p.69). Strategic rotation is to shift the composition of work groups to constantly challenge established routines, priorities and paths. This can help to develop a common understanding of problems and solutions that again can reduce conflicts and reduce existing internal divisions. Self- organizing teams can be effective at releasing unknown

potential, “out of the box” solutions of new tasks that can increase the adoptability of new thinking and reduce the traditional perceptions of doing things. The establishments of an open culture where criticism is a natural and accepted part of the routines is important in order to improve work.

Evaluation practices are particularly important in the public sector. These evaluations can be both ex ante, before the final political product is to be approved, and ex post, after implementations in order to ensure that goals were attained. Although the action plan contained direct organizational goals to increase the learning ability in the Ministry, few efforts have been launched in this area. Organizations in charge of innovation policy should have good routines for learning and evaluation and good practices for the absorption of knowledge from outside the organization. From these arguments I suggest the following hypothesis:

2. *Incentives and routines for policy learning have not been properly implemented within the ministries.*

3.4.4 The Role of Coalitions in Organizations

Another related organizational theory that can contribute to explain the challenges of implementing new policy and organizational changes are the theories of dominant coalitions first held by Cyert and March (1963). It assumes that individuals in an organization have their own goals or preferences they wish to implement. These individuals have to cooperate with others who have preferences in the same direction in order to reach their goals. Together, these individuals and groups of individuals will constitute a coalition. A coalition can have its basis in common education, ideology, mind sets, department, sub units, identities and so fort,

that can rival about goal setting, power and positions within the same organizational structures (Scott, 2003, p. 296).

One coalition is usually dominant over other coalitions although these coalitions can shift over time due to changes in priorities, leadership, recruitment policies or a coalition's work to get in a dominant position. In large complex organizations there can be dominating coalitions in each sub unit who can compete against each other in the organization as a whole. These conflicts are in some organizations very obvious, in others almost not apparent at all (Scott, 2003, p. 297). The organizing of an organization can have a large influence on the degree of conflicting opposing coalitions that an organization can represent. Some structures enhance these conflicts, while others reduce them. Leaders, internal division of power and external stakeholders are important factors influencing this. Organizational processes that can contribute to the reduction or strengthening of these conflicts are recruitment policies, socialization processes within organizations and advancement policies within the organization (Østerud, 2003, p.68). This can present alternative explanations on my case as it can explain how those previous discussions influenced the final outcome of my case. Remøe (2005) has pointed out several tensions between different coalitions within the Norwegian ministries that complicate the process of initiating a comprehensive innovation policy (Remøe, 2005, p.227). This can be materialized in the following hypothesis:

3. Different coalitions within the ministries can have contributed to reducing the degree of change and impact in the innovation policy area due to opposing interest.

3.4.5 The Importance of Leadership

As mentioned earlier, changes in leadership can shift or reduce power constellations in organizations. This demands strong leadership with clear visions and ability to gather

different opinions in important strategic choices. Van de Ven (1986) claims that leadership is critical in creating a cultural context that fosters commitment, enthusiasm, common visions and innovation (Van de Ven, 1986, p.602). This demands a supportive leadership, where the leader has a particular responsibility in periods of change. A leader's main responsibility is to define the institutions mission, embodying purpose into the organization's structure and systems, defending the institution's integrity and ordering internal conflict (ibid). These responsibilities can be transferred to the organizational changes in government when they are changing their working methods to manage new policy areas. In my case there was a shift of Minister in the middle of the period that could have had a negative influence on this process. Large, comprehensive change demand visions, insight and ability to work with a long time perspective. A change in leadership might have been disturbing for the process and reduced the impact of the initiative. As I mentioned above, leaders can have a great impact on the different coalitions within the ministries. I am also going to bring this dimension of leadership into my discussion. From this I suggest the following hypothesis.

4. Political leaders failed to execute long term, visionary leadership and did not manage to unite opposing interests within the ministries.

Now I have presented different theoretical foundations and hypothesis and theories I will use as a base to discuss my case in chapter 4.0.

3.5 Methodology

Methods are how we proceed to find the best answers to a given approach to a problem. I will use a qualitative approach in this thesis. I will use interviews as a main source of empirical evidence together with secondary literature and official documents. This is a case

study of the process of developing and implementing one policy document, the Norwegian action plan for a comprehensive innovation policy. Gerring (2004) argues that a case study is defined as an intensive study of a single unit. The aim is to generalise across a larger set of units from the one case. The case study approach where employed in order to achieve detailed information on the process of developing and implementing a comprehensive innovation policy in Norway and further to generalise from these findings. Due to the nature of a case study, ambiguity is to a certain degree inherent. The informants will give their subjective perception of the case and an objective representation of the different forces influencing the process and implementation on a coherent innovation policy is therefore difficult.

3.5.1 The Interviews

Before conducting any interviews, I made an interview guide where I made questions that pointed to the different factors I believed to be of importance for the failure of the action plan. I also asked about their perceptions of the changes in the innovation policy area. The interviews where semi-structured and had open-ended questions. The interview guide also contained questions about academic background and prior work experiences, to get a nuanced picture of the persons interviewed. The interview guide did not require any large revisions after I started conducting interviews. During the interviews I did not use a tape recorder; I only referred the interviews by writing notes. All of the interviews were confidential and no one of the interviewees will be quoted by name in this paper. The interviews took approximately one hour.

In the selection of my interviewees I focused on their position in the process with the plan as I wanted to get the different opinions from stakeholders involved. I wanted to interview most high- ranking officials as they often have a broader knowledge of such

processes. I selected different organizations I knew are important in the work with innovation policy to get their opinions on the matter. I also got very helpful support from my supervisor who gave me many suggestions on interview objects in different organizations who had been important in the process with the action plan and in its aftermath. As I started conducting my interviews, many informants gave me new names they thought could bring new knowledge to my thesis. I have also been in specific contact with the Ministry of Trade and Industry and got interviews with many different officials there. Because I have used "from Idea to Value" as my case and the ownership of this action plan was in the Ministry of Trade and Industry I had additional questions for them about internal procedures and routines. The interviewees mostly supported each other's claims and statements, when corrected from position and workplace.

4.0 Explaining Failure

The theories presented above give many possible explanations for why the plan for a comprehensive innovation policy in Norway can have failed, both in its making and implementation phase. I will now discuss these theories up against my empirical findings and see which ones that can contribute as explanatory factors.

4.1 Knowledge and Structure as Explanatory Factors

I will first discuss my main hypothesis, namely that the reason for failure was lack of knowledge about the contents of a third generation innovation policy which led to a lack of anchoring within relevant organizations. These difficulties are not only Norwegian challenges. Many western countries struggle to create their own innovation policies that include tailor-made and effective efforts to improve their innovative capability. This demands a deep knowledge and understanding of innovation policy on the one hand, and about a nation's innovation system on the other. In this section I will look more into

- The lack of knowledge and common understanding about innovation policy as a reason for failure
- Governmental structures enhancing these deficiencies

The OECD has pointed out that the knowledge base for innovation policy in most European countries, its contents and implementation is unsatisfactory (OECD, 2005a, p.15). Since we can talk about a European wide lack of common agreement and understanding on the contents of a coherent innovation policy one can argue that the Norwegian efforts has been rather successful, only by being able to make a sense of wholeness with their policy. Many stakeholders have during interviews emphasized the attempt in it self as a success as it made many ministries work together on a common policy area. On the other hand, this does not

equal to having a successful innovation policy. There are also many examples of countries who have managed to implement third generation innovation policies although they might not be successful on all areas (OECD, 2005b).

It can also be discussed how common this understanding of innovation policy was, and also, is. The interviewees all gave a broad definition of innovation and innovation policy, but they were still far from being coherent. Very few managed to point out concrete policy efforts that were coherent, cross- sectoral and could improve the innovative capabilities of the Norwegian innovation system. I believe I can use this as an indication of the degree of common understanding of innovation policy between the organizations they represent. These differing views are apparent in the different ministries, government agencies and political parties.

As many of the informants pointed out, policies are still sectoral and it is difficult to make connections and cooperate across established boundaries. This can indicate a limited common understanding of innovation policy on the top level in organizations and this reduces the ability for the lower levels to change their practices. However, this entire process was a rather top- down initiative so the resistance to change might as well be established structures working to preserve status quo.

Another important factor influencing the lack of knowledge is the short time used on preparations for the action plan. One informant pointed out that less than a year was spent on it, leaving little time for the acquisition of new knowledge and the translation of existing general knowledge about innovation policy into policy specific knowledge. The short time period can also have limited the possible degree of common understanding between involved stakeholders. Although some informants said that they were using time on working out common definitions and understandings, the interviews show that this understanding did not go very deep. Using enough time to develop this common understanding could have made the

implementation process easier as it had removed many obstacles between different actors and interests. This indicates lack of learning routines in the ministries and lack of knowledge on how one should anchor changes within organizations. I will discuss this more in chapter 4.3.

These different explanations are reinforces by the divided responsibilities between the ministries on the one hand and the outsourcing of policy implementation in own organizations on the other. The tradition for segmentation is strong in the Norwegian bureaucracy and these structures have been reinforced as the new public management reforms of public sector have been implemented (Remøe, 2005, p.229). The separation of implementation and planning of policy and the increased independence of these agencies have made it difficult to execute policy across established borders because of fragmentation in government (Ministry of Administration and Government Reform, 2003, p.19).

Remøe (2005) has argued that this fragmentation of government is the main barrier to implement a coherent innovation policy. This makes it difficult to deeply anchor new policy and ways of thinking in all areas of government. Many of the informants especially pointed out the difficulties with the strong sectoral principle and the difficulties this especially represented for the necessary coordination of the different policy areas. This was also evident in the process of making the action plan.

One informant said that the lack of a leading Ministry, with the sufficient power to "force" other ministries to change their priorities, was one of the main reasons for why the plan failed. In the Norwegian political system, the only minister in position to control others is the Prime Minister, and to some degree the Minister of Finance. Many informants suggested that the process would have become strengthen if the Prime Minister had been the responsible Minister. This implies the importance of leadership I will discuss this more thoroughly later in my discussion.

Due to both fragmentation and time aspects, stakeholders outside government to some degree felt disregarded in the process. There is very diverging views on the involvement of external actors. One informant said that from the outside the process looked as it was supposed to be an internal one and not connected with the other actors in the innovation system. Some informants said they were thoroughly included while others said they were left out of the process. Regardless of this inconsistency, this is an indication that the process was not sufficiently anchored as there can be so diverging opinions on the same matter. This lack of anchoring of other stakeholders is problematic for the common understanding of innovation policy and to the implementation process.

Another important group of stakeholders were lack of anchoring have had undesirable results is in the political opposition. This is today evident as the change of government in 2005 set the final end to the implementation of a comprehensive innovation policy in Norway. Although there were little ideological resistance and disagreement towards the action plan, the ideas and visions behind it did not become part of the opposing political parties understanding of value creating policies. It is especially important in minority governments to sufficiently anchor their long term policy in other political parties. This is because minority governments are more vulnerable to rapid political changes and they should therefore ensure the durability of policy and efforts by anchoring it deeply in other political parties.

This discussion has presented us with relatively strong indications of a lack of both relevant knowledge and anchoring. These shortcomings could be enhanced by forces of inertia and path- dependency, political leaders and strong dominant coalitions and policy learning. I will discuss these additional explanations in the next chapters.

4.2 Path Dependency and Inertia in Policy and Practices

Norwegian policy and parliamentary practices have over the last forty years made both the need for and the power of the bureaucracy stronger due to a tradition of minority and coalition governments. Frequent changes in governments and/ or partly overrule by the parliament have made the development and implementation of policy more dependent upon the competencies of bureaucracy. Policy actions and efforts are influenced by prior priorities. This can be good as the collective memory and knowledge in an organization can contribute to improve new efforts. However it can also hinder new thinking and changes in policy. In this case, path dependency can be materialized in direct policy efforts, working methods, in the mindsets of individuals or in the culture or different cultures within an organization. In this section I will look at:

- The degree history and prior decisions have influenced the process and implementation of the action plan
- To what degree internal forces may have contributed to the failure of the action plan

From my interviewees I got indications that history to some degree has influenced the process of making a coherent innovation policy. This is especially evident in the plan itself where many of the efforts were very sectoral and already established parts of other related policy areas. One informant claimed the plan was a "Manifestation of the sectoral policy principle in Norway". The Norwegian bureaucracy is traditionally divided into strong and independent ministries. It does not matter if the intentions were cross- sectoral and an intended superstructure for other related policy areas when the result continues to be sectoral.

However, due to Norwegian government structures a shift in the division of labor between ministries would require a structural reform, not only new policy efforts. On the other hand, other countries with the same ministerial structure have managed to make well-

functioning cross- sectoral policies within exiting boundaries, as the have in Finland. They have a government council of science and technology led by the Prime Minister and has the strategic, long- term responsibility for making coherent policy in areas important to the Finnish innovative capability (www.minedu.fi). The comparable Norwegian government council only met a couple of times without any specific results. This might be because of many other reasons than path dependency, although the "way of doing things" may have affected the work at this level as one informant pointed out.

An argument against path dependency is the novelties following the plan. Several informants have pointed out the novelty in the process, like that fact that three ministries cooperate and present a common action plan and commit to co-ordinate their policy with other policy areas. This is a shift in policy planning and work in Norway and is therefore not in favor of the path dependency argument. One informant also said that the agreement of a common definition and understanding of innovation and innovation mechanisms is a valuable change. Path dependent mechanisms would have slowed down or stopped this process. However, as I have mentioned earlier, these changes have had limited effect and can therefore not justify a total disregard of path dependency as a contributing factor.

History and tradition will always play an important part in the making of new policy. It is however difficult to present any example off path dependency in action, although it seems clear that it was present. Path dependencies can also be materialized or strengthen through other mechanisms in an organization. Leadership, learning and coalitions can be influenced by path dependent structures. Another related force that can contribute to path dependency in organization is structural inertia.

Inertia can be explained as different forces within and between organizations. In this case the ministries worked to push development in different directions. An informant said that the traditional boundaries within the ministries still are influential. Genuine cooperation

across these boundaries can be difficult. The Norwegian ministries are large, complex and old organizations; as Hannan and Freeman (1984) argued in their paper, this can be an indicator of a high level of inertia. Is this the reason why the Norwegian efforts at creating a comprehensive innovation policy had limited effects? If we assume that Norwegian ministries have a high level of inertia, change would have to be slow and gradual (Hannan and Freeman, 1984, p.151). If we look more closely at our case, it can be a just claim that the entire process was rushed through the system. Several of my informants commented the short period of time this process was carried out. Approximately one year was used on preparations, making it difficult to include and cooperate with all interested parties in the process.

The plan in it self is not very old, three years in public sector is not a long time to implement such broad and fundamental changes, making the time aspect a possible reason why very little change is traceable. Although some of the informants presented this as a possible explanation, others put more emphasis on the plan and its efforts in it self, claiming that the efforts suggested were insufficient in reaching the goals for a comprehensive innovation policy.

The main problem today is the complete lack of focus on innovation policy in the political debate and in the work of government. This can be due to two main reasons. First, the preparatory work was insufficient and the follow- up work is therefore difficult to implement. This will be discussed in chapter 4.3. Second, the preparatory work and the plan were influenced by forces reluctant to make these changes, making it difficult, unnecessary and pointless to continue a process without the necessary means. Some informants gave indications of the latter claiming that the opposing forces to the concepts and ideas of innovation policy worked to make the plan as “harmless” as possible. Considering that the plan did not include fresh funding and that many of the efforts were established parts of other

policy areas, facts supports this claim. However, these actions might not be deliberate, but are consequences of the action of individuals who work towards own goals. This can be an example of the bounded rationality of both individuals and organizations.

Politics is about making priorities between different policy areas. Due to limited resources, increased efforts in one area will ultimately lead to a reduced effort in another. This is also the case in the innovation policy area. The managers of other policy areas can therefore be in opposition to new potential rivaling projects in fear of competition over the same means. This can also be a reason for the lack of budgetary anchoring as it makes new policy harmless to already established policy areas. This will be further discussed in chapter 4.4.

In the process of slowing down or hindering change, forces of inertia can work together with forces of path dependency and reinforce each other. In this case, inertia as the rigidity in an organization can be seen as apparent. This is however not a one-sided negative quality. One informant emphasized the importance of a well- functioning bureaucracy that resisted radical changes as this is a protection against sudden upheaval. There is on the other hand a middle way between the two. The dangers of path dependent lock- in and an absolute resistance to change should be met with strong and committed leadership and a consensus on the main goals and targets. These are factors that have to be in place in order to reduce inertial forces when new policy areas are to be executed. I will elaborate this in chapter 4.5.

4.3 Organizing for Policy Learning

During my interviews I have found much support for my thesis that there is a lack of policy learning and reflection on the effects of organizing within the ministries. There is little interaction between departments within ministries and between ministries. Modest interaction and poor communication between people with different backgrounds and identities, can lead

to many different understandings of policy methods and directions. Many of the informants also emphasized this during the interviews. In this section I will look more closely at:

- The routines and organizational settings for creating common language, i.e. a common understanding of innovation policy
- The composition of employees to strengthen the development of a common understanding of innovation policy
- The implementation of new organizational working methods
- The governments system for learning and evaluation

On of the main goals when initiating a new, cross-sectoral policy area is to develop a united understanding of what this area contains. I have got diverging evidence on this subject. Many informants claim that the united and common understanding of innovation policy is one of the successes of the document, while others said that this agreement is worth little as long as the efforts following it were so limited. The diverging definitions presented by the informants also contradict this. If we put emphasis on the importance of establishing a common language or understanding, agreeing on the same text may not be sufficient as people with different academic, cultural and professional background can put different meanings into the same sentence. This does not however make them agree more on the subject matter, the disagreement is only postponed.

To ensure an actual agreement and common understanding on content, Nonaka (1991) has recommended organizational methods as strategic rotation between departments and teams, autonomous self- organizing teams and the importance of employing people with different backgrounds and also mixed backgrounds (Nonaka, 1991, p.102-104). Recruitment policy is an important aspect here. During my interviews I found that a strategic recruitment of people with different backgrounds was more or less absent in the Ministry of Trade and

Industry, although they stressed the need for a basic economic understanding as a criteria for hiring new personnel. These practices have been criticized by some informants as being biased in favor of a traditional economic understanding of policy. I will elaborate more on this tension in the next chapter.

Diversity in the capabilities of new and old employees can contribute to change organizations socialization behavior and reduce the homogenization new employees can go through when changing workplace (ibid, Østerud, 2003, p. 68). This can reduce boundaries between parts of an organization and contribute to the development of a common language or understanding between all elements in an organization. According to some of the interviewees, the working atmosphere between the three ministries improved and they developed a common understanding of innovation policy. However, the same informants also reflected on that this effect might be limited to the people who had been active participants in the process. If this is correct, the attempt to encourage more cross sectoral work and understanding between ministries also failed.

One informant said that the Ministry of Trade and Industry did not have explicit practices to reduce established boundaries. As a precondition for learning, the establishment of a flexible organization should be included as a part of the work with making the Ministry a learning knowledge organization. During my interviews I found that the organizational goals towards the Ministry itself were under prioritized from the beginning. However, some informants told me that each department within the Ministry of Trade and Industry had got more freedom in organizing themselves. This is a positive development, although this freedom had not revolutionized the way of work in any department. Path dependency and inertia can be forces contributing to this. The increased flexibility is the only visible effort of the organizational goals from the plan. Little emphasis on this work indicates an underestimation of the importance of organizing in order to achieve certain effects. Although

the implementation of learning mechanisms failed to be an ongoing part of the work, the process with the plan was perceived in it self as policy learning by its participants. Many informants expressed that the process had been educational for the participants.

A second organizational goal was to develop new working methods to ensure and improve the Ministry of Trade and Industry as a learning and knowledge organization. The increased freedom for department in organizing themselves has however not led to better learning practices according to an informant. The development of a knowledge organization where learning and flexibility are central features demands focus from its managers and a will to act and change an organization in this direction. No one of the informants could point to any such changes within the Ministry.

Following "from Idea to Value" there were established a cross ministerial working group to ensure that the different ministries were coordinated. According to an informant, this was not an easy task. One of the reasons he suggests might be a too week anchoring in the respective ministries, as well as too little understanding and support at the top bureaucratic level. According to other informants there is no work with this cross- sectoral cooperation at the moment. In addition, the different policy efforts from the action plan were, as I have written earlier, sectoral, making it less important to have a well functioning cross- ministerial understanding and coordination of the work. Due to the traditional independent Norwegian ministries, this is not surprising (Remøe, 2005, p.224). This can also be an expression of path dependency as they were unable to create new cross- ministerial goals and policy in the process with initiating a horizontal innovation policy.

A third goal and effort to improve the learning ability of the ministries was the creation of evaluation systems. Good evaluation systems ensure the feedback mechanisms that are important to improve the knowledge flows into an organization. Learning is dependent on these structures. A system for evaluation of goal attainment was one of these

goals. The creation of such systems has been supported especially by the Confederation of Norwegian Enterprises in order to make policy and policy efforts more examinable, and to be able to improve policy. According to informants, this work has stagnated within the ministries, although many other public agencies use these methods as an instrument to improve their performance. From my interviews I have found that this was never a top priority for the Ministry of Trade and Industry and is today no longer on the agenda.

An important input to the innovation policy management process is the ability to evaluate and learn from these evaluations (OECD, 2005, p.69). Emphasis is especially put on the use of ex post evaluations to measure consequences and goal attainment, but also the use of ex ante evaluations, to obtain sufficient knowledge bases of the policy area in question. We can use the Norwegian process of creating an innovation policy as an example in it self. After internal government deliberation, it was decided to present the new effort on innovation policy as a government action plan. A decision to make it a white paper or to put down a public committee to make a report to parliament (NOU) would have made the process prior to the launch of a comprehensive innovation policy better rooted in stakeholders outside the ministries. White papers or reports to parliament have rules for hearings; involvement from external actors and the period of time they have to be open for input. This would have required a larger knowledge base of the Norwegian innovation system, both its strengths and weaknesses, and would perhaps have given a different recipe than the current for what an innovation policy would imply. These different document processes also demand more thorough political processes in Parliament; this could have contributed to a better anchoring in other political parties and reduced the vulnerability of the plan as governments shift.

The final area where the Ministry of Trade and Industry was expected to initiate organizational changes was on the collaborative work between other ministries and other external stakeholders. Many informants said that today, these relationships are dependent on

personal acquaintances and common background. Informants from organizations outside the ministry were for the mostly not satisfied with their degree of involvement in the process with the action plan. There are very divergent views on the degree of cooperation with external actors. Organizations outside the ministries seem to think they were overheard and ignored, while the ministries thought the process had been very including when it came to third parties. This indicates poor communication between parties and lack of well-functioning routines for such involvement.

Government agencies outside the ministries were, according to my informants, slightly bettered involved in the work although they also stressed the importance of personal relations. This witness a lack of involvement routines and different perceptions on what involvement includes. This reinforces the need for improved policy in this area. On the other hand almost everybody had the same perceptions of the process of developing the action plan and the reason for failure. This can indicate a better involvement and anchoring process than what is perceived by the informants.

The work with making policy more horizontal and cooperative has been neglected since 2003. As we can see, most of the efforts in this area have not been implemented. This makes the organizational part of these policy changes difficult, as the executing agency does not have the appropriate means to develop and implement a comprehensive innovation policy.

4.4 Policy- a Result of Rivaling Coalitions?

Some informants claim that there are different educationally based coalitions within and between ministries. These conflicts are especially present in the Ministry of Trade and Industry. These coalitions have their basis in education and a common understanding of the rationale for policy actions. This is connected to the different argument for policy actions

using either a market or systemic failure argument I presented in chapter 3.2. This is among other things visualized in the fact that over 50 % of the bureaucrats in the Ministry of Trade and Industry have an economic education, indicating their common perception of these arguments. This tension is also apparent in other government institutions but at different degrees. Informants from other government agencies also witnessed these different coalitions within their own organizations. These informants also put forward the healthy implications of such differing perceptions as it made the organization more dynamic. In this section I will discuss the

- The nature and dynamic of coalitions
- The ideologically and territorially rooted coalitions in the ministries

These coalitions can as I presented in 3.4.4 shift and change composition. An informant emphasized that this coalition was not always dominant and suppressing of other coalitions, but that it is the economists who decides when there is a conflict of interest. Another informant said that this influence of economics and the resistance to become directly involved in policy efforts goes way back. “It is in the walls of the Ministry of Trade and Industry” one informant said. This also gives the path dependency argument more weight. Informants participating in the process with the development of a comprehensive innovation policy said that the participants had decided that the theoretical conflict between innovation studies and more classical economics was artificially constructed. They worked under the interpretation that the two directions were supplementary rather than mutually exclusive. However, despite this agreement the interested parties could have worked to push their own views forward.

Remøe (2005) has pointed out several opposing coalitions within the ministry of trade and industry and between the different ministries in his study of Norwegian innovation policy

(Remøe, 2005, p. 227- 228). These conflicts follow at least two dimensions, one ideological as I have partly discussed above, and one territorial.

During my interviews I got opposing opinions on weather there was a real or constructed conflict between the different views on the rationale for policy actions to improve a nations innovative capabilities. Some informants claimed that this conflict was dominant and that they permeate all relevant policy areas. Others claim that this conflict is overstated and constructed. They saw convergence between the theories and claim that they complement each other more than they are rivals. As it is difficult to draw unified conclusions from these opposite claims, I have tried to see how this conflict can be apparent in policy and practice.

As I have written above, among the employees in the Ministry of Trade and Industry, roughly 50 % have an economic background, while the rest are a mixture of different academic backgrounds. The responsibility for the plan was placed in the economic policy department, making them able to influence both its mandate and content. One informant said that because of this influence eventual effects of the plan were reduced to a minimum before the plan was launched, making it meaningless to continue work. This indicates the large influence different coalitions can have had in the process.

An informant said that the economists in the Ministry of Trade and Industry holds most leadership positions and have emphasis on recruiting and placing “their” people strategically in the different departments within the ministry. Other informants point to the fact that the common mind set between the economists in the different ministries reinforces this particular perception of policy and what policies should contain. I will elaborate this further in chapter 4.6.

There are several factors that can influence the role and power of coalitions. Leaders are very important, and can together with power divisions and the influence of external stakeholders contribute to shift dominating coalitions (Scott, 2003, p 298- 303). The

influence of coalitions can also be connected to the decision- making models. Since the nature of coalitions is dynamic, a decision- making process that includes these unknown consequences serves better to explain the process of working out a coherent Norwegian innovation policy. This can be an explanation for why the results of the plan got a different result than intended from the initiators and policy- makers.

The territorial conflict is based on position and placement within the organizational structure. Although being a sectoral bureaucracy, Norwegian ministries can be given tasks crossing these sectoral boarders. We can use the Ministry of Trade and Industry as an example; this is the Ministry with the main responsibility to ensure the nations value creation. However, we also have own ministries for Petroleum and Energy, Agriculture and Food, and Fisheries and Costal Affairs who also are industries and therefore the executers of policies within these policy areas. In addition, from an innovation perspective, the main responsibility for research is in the Ministry for Education and Research and the ownership of the Innovation Norway and SIVA is primarily in the Ministry of Local Government and Regional Development because of its rural implications. This is not necessarily negative, but it complicates the role of the coordinating Ministry when so much responsibility and competencies are placed in other ministries. As relatively autonomous and independent ministries one informant said that “Everybody wants to coordinate everybody”. This has led to difficulties in the cooperative work between ministries as the division of power can lead to conflicts between territorially based coalitions within different ministries.

To avoid such potential conflicts, strong leaders are required to set the policy agenda and make the necessary changes to ensure their role as a coordinator. A leader can influence different coalitions and their dominance. A strong leader can be able to shift power coalitions or reduce their significance if he manages to unite them in sharing common visions and strategies. On the other hand a week leader can risk to be overrun by the dominant coalition,

becoming a hostage for their priorities (Scott, 2003, p.298). The implications of leadership will be more thoroughly discussed in the next chapter.

4.5 Strong Leadership- a Precondition for Change

This process has according to informants been a top down process from the beginning, making leadership important both as a contributing factor to the plan, but also as a reason for its failure. OECD (2005a) has presented strong and visionary leadership as an important success factor to be able to implement a coherent innovation policy that would otherwise be difficult to justify (OECD, 2005a, p.68). This makes the executed leadership in this period important. In this section I will discuss:

- The consequences of the frequent changes of minister in the Ministry of Trade and Industry
- The importance of strong and visionary leadership
- The position of the Minister of Trade and Industry compared to other ministers

There was a change in Minister in 2004 where Børge Brende replaced Ansgar Gabrielsen. They are both from the conservative party but had different qualities for managing innovation policy. An informant said that while Gabrielsen had been a part of the entire process Brende had to get familiar with the policy area and work, and did not have the same ownership to the process as his predecessor. In the autumn 2005, shortly before the entire government's departure due to the elections, Brende issued a state of the art report on the different efforts from the action plan from 2003 (Ministry of Trade and Industry, 2005). After the new center-left government entered the ministries, the entire plan has been replaced by a different approach to broad value creating policy. An informant said that although they were continuing many of the same efforts as under the previous government, it is now referred to

as an active industry policy, not as innovation policy. This is not surprising. As one informant said, “No minister proceeds with the former minister’s policies when he is recently elected”. However, there has been great consensus between most political parties in the area of innovation policy, so there is no political reason for the decision not to continue the work with the plan. A different explanation for this can be a lack of understanding and anchoring in other political parties. Another explanation can be the satisfactory economic situation at the moment which does not encourage policy action in this area.

Our parliamentary systems with relatively often shifts of power constellations make Ministers as leaders limited both in time and perhaps also in knowledge and experience in certain policy areas. The Ministry of Trade and Industry have had 7 Ministers the last 10 years although one has been minister for two different periods. These rapid changes of minister in the Ministry of Trade and Industry can be illuminated in the decision 28.09.06 to replace Odd Eriksen with Dag Terje Andersen (Ministry of Trade and Industry, 2006). The many recent shifts of minister in the Ministry with the main responsibility for innovation policy may have contributed to the failure of the plan. Many informants claimed that this was the decisive reason for why both the process and the plan failed. Recent shifts can also weaken the position to the minister compared to the other ministers, making it more difficult to set the political agenda and become prioritized in the budgetary discussions, which set the main frames for further priorities. An informant claimed that the Ministry of Trade and Industry is a traditionally week Ministry as it has limited resources compared to other ministries which it in this case, is set to coordinate. This does not simplify the situation.

Another example is the government innovation committee and the government innovation forum. The latter only had two meetings and at one of the meetings, the Minister of Trade and Industry and the leader of the largest Norwegian labor union, LO got into a large discussion and had to leave the meeting. This made the evening headlines and may have

contributed to the limited success of these meetings. There have also been several claims that if the government's innovation committee had been led by the Prime Minister instead of the Minister of Trade and Industry the committee would have got more weight and strength. Evidence from for instance the Finnish science and technology council support this claim (www.minedu.fi).

From my interviews I have got many indicators that it was the week position of the Minister of Trade and Industry that contributed to the limited effects of the plan. This may have given the bureaucracy more authority to decide on policy and the direction than was politically intended. The absence of a strong leader can enhance fragmentation within government and fail to unite conflicting interests. The results of policy can therefore differ from what was politically intended. Connecting this to the theory of dominant coalitions, a week minister will automatically support the dominant coalition in the Ministry. On the other hand, a strong minister can change the centre of gravity and shift the division of power and future priorities. During my interviews all remarked change both in leadership style and in priorities from Gabrielsen to Brende and from Brende to Eriksen, the former labor government Minister of Trade and Industry from the Labor Party. This makes leadership an important aspect of the process, and the frequent shifts of minister did not benefit the process. This has contributed to the current situation for Norwegian innovation policy.

In the previous sections I have discussed the importance of knowledge, structures, history, inertial forces, learning, coalitions and leadership. These are all contributing factors to the failure of the action plan for a comprehensive innovation policy. This indicates that the reasons for failure are complex and have great influence on each other. In addition to these causes I have during my analysis I have found other factors that may have contributed to the failure, funding of new policy efforts and the timing of change. These will be discussed in the next chapter.

5.0 Discussion and Conclusions

5.1 Budgetary Implications and Learning from History

As I have written earlier, there were no budgetary commitments attached to the action plan when it was presented. The only exceptions were the nine projects that were locally run by the different relevant authorities. For all policy efforts that were not already within established policy actions, funding had to be found within existing budgetary boundaries. This can have reduced the incentive and the possibility for relevant government agencies to implement innovation policy changes. This can be explained as a consequence of these different factors:

- Lack of policy learning within the ministries
- Poor political leadership
- The strength of internal coalitions
- Power struggles and internal forces who willingly or unwillingly hold back change

First, we can use the argument of absent policy learning within government. Lack of sufficient funding when large changes or readjustments are to be implemented can lead to a paralyzing of the organization in question when removing the incentives to change. This can also create larger possibilities for internal struggles, and rivaling between different coalitions. A recent Norwegian example is the fusion of five research councils into one national research council in 1993 (www.forskningsradet.no). At the same time as the new research council became operative they experienced large budget cuts and these cuts lasted several years. According to the evaluation report in 2001 of the Research Council of Norway, these cuts materialized themselves in budget struggles, internal rivaling and micro management from the ministries to support their sectoral interests. Because of this, their mission to become a

coordinating, integrating council with holistic perspective and actions became a “mission impossible” (Ministry of Education and Research, 2001, p. 7).

These consequences are in many ways comparable to the results of the work with a coherent innovation policy. They were both attempts to implement a holistic, coherent and coordinating policy although in different areas and with different means. The most important common feature from these processes are the inability to act and change relevant structures. The evaluation of the Research Council of Norway was known in both government and in the ministries. This indicates a lack of policy learning from prior decisions and actions. This reinforces the importance of well functioning systems for continued feedback of knowledge into an organization in order to improve policy. The ability to learn is a decisive credential for successful governance. This is enhanced by the rapid changes in society following a more globalized world. This example of “memory loss” indicates that something is fundamentally wrong with how our government and governance structures are organized.

This also indicate poor political leadership, with regard to both the absent policy learning and the inability to provide sufficient funding. Political leadership is the second area I am going to discuss. Informants have indicated that the Minister of Trade and Industry was relatively weak in comparison with other ministers. One informant said that there was limited interest from ministries not directly involved with the plan. These were not particularly interested to increase funding in this area. Others have pointed out that because the Ministry of Trade and Industry had a weaker position than the other two main ministries, their role as leader and demander of increased funding was undermined. Again we can see the structural coordination difficulties when one ministry without the necessary means to set innovation policy on the agenda and improve innovation policy, is set to coordinate other who has them. This is also an indicator of the fragmented Norwegian government. Although these structures

might be beneficial for some purposes, one should also look at the unintended problems they cause for other policy areas.

A third explanation is the particular role of the Ministry of Finance in the Norwegian government. It is in a way superior to other ministries as it can control their income and revisit their expenses. One informant said that the Ministry of Finance could "make" other ministries change priorities. A consequence of this is that this Ministry becomes the key policy maker. However, they also have to follow the common priorities from government and this power will therefore be limited. Other informants related the attitudes of the Ministry of Finance to the differing views on innovation policy between the more classical economic tradition and the evolutionary economics. They share the same perceptions of which instruments to use to support innovation as their fellow economics in the Ministry of Trade and Industry. One informant said that this can lead to more policy in this direction, which is more focus on the general framework conditions and less attention to the direct efforts through government agencies as for instance Innovation Norway. Another informant said that the common understanding between the dominant coalition of economists in the Ministry of Trade and Industry and the Ministry of Finance might contribute to more funding of innovation efforts than would have been the case else wise. The process in the Ministry of Trade and Industry would ensure that the efforts in question already were approved by economists with the same perceptions as in the Ministry of Finance and would therefore increase their possibility of being realized.

However, there is a fourth possible explanation. Each ministry has some liberty to rearrange their budgets in order to prioritize other policy areas. In the case of innovation policy large efforts in this area could lead to less attention and funding towards other areas. One informant said that the ones managing these other projects could be in opposition to new potentially rivaling projects in fear of competition for the same resources. Such "re-labeling"

within budgets has according to an informant led to power struggles in-between policy areas where in most cases existing policy efforts have won. One informant emphasized that this lack of budgetary anchoring can be a way for agents opposing the ideas behind the plan to make the proposed policy changes harmless. Both as a new policy area and as a rival to established policy areas. This is a way of making policy documents become only words instead of action.

This can be evidence of path dependency and inertia and the dynamics of dominant coalitions within ministries. This supports my claim that internal forces, willing or unwillingly, can contribute to undermine political and structural changes. Lack of policy learning, poor political leadership and fragmentation are also important reasons for why a coherent innovation policy failed. These processes were strengthened, or vice versa, by the lack of budgetary anchoring of the action plan.

5.2 The Importance of Timing

Another area I found might have been important for the failure of the plan was the changing economic conditions during the period in question. In this section I will discuss:

- To what degree changes in economic performance influenced the process and implementation of the action plan for a comprehensive innovation plan in Norway

When the work with a comprehensive innovation policy was initiated, interest rates were high, there were rising unemployment, out- flagging of industry and people were more concerned about their jobs and their future. Politicians absorb this and these periods usually change focus to industry policy and policies for maintaining a high degree of society's value creation. However, this trend shifted during the government election period and removed focus in the political debate from industry and future welfare issues to other policy areas. The

informants were presented with this claim that shifting conditions in the economy is one explanatory factor for why innovation policy failed. I got very different responds to this question.

Some of the informants claimed that this was a relevant factor and that a worse economic situation would have contributed to pushing innovation policy forward both in regard to funding and policy. These views were justified by using examples from Finland and Sweden, who both had much more severe economic problems than Norway during the 1990's (www.minedu.fi). From this perspective the improvement in our economy made these efforts less important both for the direct involved parts and for politicians. This also reinforced the views of the economists within the Ministry of Trade and Industry as only the improvement of general framework conditions had improved the economic conditions. Other informants stressed that an improvement in the economic situation made innovation less important for the electorate, the media and i.e. less important for politicians who are dependent continues media coverage.

Other informants oppose this claim because innovation policy was never a policy area with public appeal and understanding because it is to complex. Using the electorate and media as an excuse for insufficient efforts is therefore difficult. However it can be a reason for reduced focus, making the Minister's efforts to raise attention and funding to this area more difficult within government.

An implication of this is that turbulence or a sense of crisis in the economy can make necessary policy changes an easier objective as established structures and decision- makers feel a greater pressure to change policy and priorities. As an example Finland experienced a greater crisis in the economy when government decided to make new and rather successful holistic approaches in the innovation policy area (www.minedu.fi). This indicates that it can

be easier to overcome structural barriers to change in times of crisis as forces as inertia, path dependency and internal coalitions become more vulnerable and willing to adjust.

5.3 Concluding Remarks

The causes for a coherent innovation policy's failure in Norway are many and complex. However, I have during this paper managed to find some indications on the main obstacles and reasons why the work with a coherent innovation policy did not achieve its intended goals.

From my previous discussions I have found that the underlying cause for all of these reasons is the lack of knowledge about innovation policy that has led to a limited common understanding and anchoring of the action plan. This have strengthened negative forces within government and made it more difficult for policy-makers to develop and implement a comprehensive innovation policy.

This knowledge deficiency is evident in the different approaches and definitions of what innovation policies should contain and where and why they should be executed. The EU Innovation Progress Report 2006 has found evidence that although all governments across Europe have visions of an innovation policy; they fail to execute one (EU, 2006). This is due to a lack of knowledge of what a modern innovation policy imply for policy and organizational structures (ibid). This lack of knowledge does not only make it difficult to develop an innovation policy, it also make it difficult to anchor common visions, goals and efforts in the many people and organizations that have to be a part of a broad innovation policy strategy. This is probably the most decisive reason why governments fail to initiate and implement innovation policy.

This argument is consistent with what OECD has pointed out, the knowledge base for innovation policy, its contents and implementation is unsatisfactory (OECD, 2005a).

Although there are consensuses on the aims of a comprehensive, coherent and horizontal innovation policy, European countries achievements in this area is unsatisfactory and diverging. The EU is during October 2006 going to host a conference were government leaders are to address these challenges more carefully (https://trendchart.cordis.lu/). This common European problem is in many ways consistent with the Norwegian case in this political area.

Many of the underlying causes for this lack of knowledge have its basis in the polarized theoretical debate on the subject. However, with sufficiently rooted visions and goals for the process of initiating an innovation policy these differences within a ministry or organization could have been overcome. These effects can be reinforced or reduced by the leader's ability to pull diverging forces together into a common understanding of policy and actions. This is a process that demands much energy, time and will from government. The failure of the action plan might be due to an underestimation of the challenges met in the process of changing focus and efforts in such a broad and cross- sectoral policy area as innovation policy.

It is also important to consider an organizations history and paths before initiating massive changes and not to underestimate internal forces at work. These can, together with rigidity and inertia become obstacles to change. However these obstacles will become larger if the ambassadors of change do not take them into account and try to include them in the process. Forces rooted within these historical positions can have contributed to the failure of the action plan by being represented in the dominating coalitions within government and in the process of making the entire plan virtually worthless as the chosen efforts were sectoral and without budgetary implications. Other contributing factors were the limited attention to learning and evaluation mechanisms internally within the ministries. If the ministries had taken these more seriously, the knowledge base for the innovation policy plan would have

been broader and the plan could have become a real instrument to ensure coherent and horizontal policies. Failure from political leaders when neglecting the need for funding in this new policy area also contributed to its poor results. This was reinforced by the positive changes in the economic outlooks, but the mentioned causes above would not alone have been a sufficient cause for the failure of developing and implementing a comprehensive innovation policy in Norway. At the basis of all these explanations is the knowledge argument, i.e. that the common understanding of what a comprehensive innovation policy should imply was absent in the process.

6.0 Policy Implications and Suggestions for Further Research

6.1 Policy Implications

From my analysis I can draw some policy implications to avoid pitfalls when developing a coherent, coordinated and horizontal policy. There is a need to develop broad knowledge bases for new policy areas, especially when they are crossing traditional boundaries. For this to be possible, learning and evaluation systems within organizations have to be dynamic and well- functioning. This will contribute to both strengthen the knowledge bases as well as creating a friendlier environment for change. The implementation of new policy areas demands long- term, strong and visionary leadership in order to make these changes. This will contribute to reduce underlying tensions within an organization; alternative ways of organizing can contribute to reduce such tensions. It is also important that decision- makers provide leaders and organizations with the sufficient means to make necessary changes.

6.2 Suggestions for Further research

As innovation policy is an area of practice, not a theoretical area, further research should contain further national investigations of the mechanisms supporting changes in the political system contributing to a nation's innovative capability. This should be used to explore alternative ways of organizing both bureaucracy and innovation policy. There is also a need for further research on why bureaucracy has difficulties with changing their policies and practices to make necessary adaptations to their changing environment. This research should suggest alternative ways of organizing for governments in order to improve policy.

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SIVA, www.siva.no

The Finnish Ministry of Education, www.minedu.fi

The Research Council of Norway, www.forskningsraadet.no

Appendix 1

Interview Guide

Personal information:

1) Academic and professional background
2) How were you involved in the process and the implementation of the action plan?
3) How do you define innovation policy? Is this coherent with the action plan?

Work related questions
1) Relationship between your workplace and the ministries?
    Is contact dependent on personal acquaintances?
    How often do you have contact, formal/ informal?
    Is this contact sufficient for your organization?
2) What is the use of this relationship for your organization?
3) Are you able to influence decisions? Is there an active dialogue?
Give examples.

The degree of change
1) Name the most important changes in innovation policy from the action plan
2) To what degree do these changes represent novelty/ degree of change?
Give examples
3) What is the greatest barrier to implementing a comprehensive innovation policy?

Causes
1) Are there signs of structural rigidity within the ministries? How?
2) Is it difficult to change focus within policy areas?
Give examples

3) How did the improvement in the economic situation influence the process

4) Which signals did you receive from the Ministers?
5) Did these changes following the change in Minister in the Ministry of Trade and Development?
6) How do the three Ministers differ in the innovation policy area?

7) To what degree is learning and learning processes an important part of government work?
8) Are the ministries good at implementing knowledge from learning activities?
Give examples

Special questions to employees in the Ministry of Trade and Development

1) Are there different coalitions within this organization? Who? Does this cause tensions?
2) Which economic theory is dominating?
3) How much can the minister influence policy efforts?
4) How do you work (working methods as for example rotation, decentralized structure, learning routines?)

5) Have these improved following the action plan?
6) How do you work with the organizational goals at this moment?

Appendix 2

List of Interviewees

Anthony Kallevig, LO, Labor Union
Bjørn Haugstad, former State Secretary, Ministry of Education and Research
Carl Huitfeldt, Ministry of Trade and Industry
Erland Skogli, NHO, Norwegian Confederation of Enterprises
Helle Hammer, former State Secretary, Ministry of Trade and Industry
Jan Johan Sandal, Ministry of Local Government and Regional Development
Jon Hekland, Research Council of Norway
Jon Kveine, Innovation Norway
Kjerstin Spjøtvoll, Ministry of Trade and Industry
Morten Meyer, former State Secretary, Ministry of Local Government and Regional Development
Roar Tobro, Innovation Norway
Tor- Ivar Wammer, Ministry of Trade and Industry
Tor Jørgen Thoresen, Research Council of Norway